

Rec'd PCT/PTO 06 MAY 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
21 May 2004 (21.05.2004)

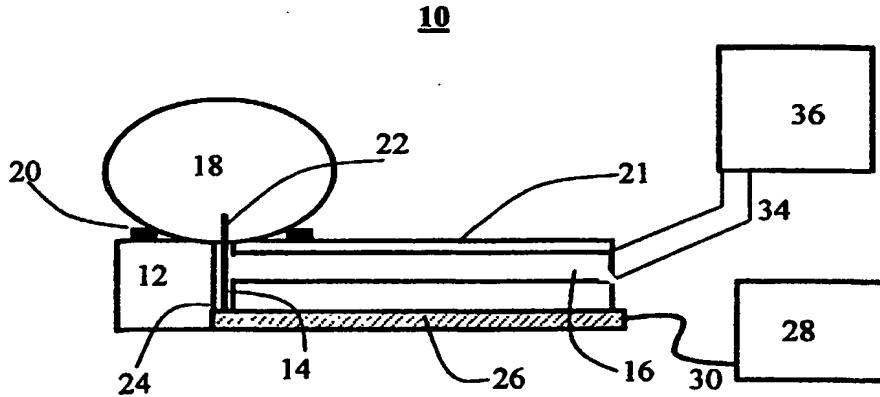
PCT

(10) International Publication Number  
WO 2004/041996 A3

- (51) International Patent Classification<sup>7</sup>: A61B 5/04 [IL/IL]; 28 Eliyahu Salman Street, 94 511 Jerusalem (IL). SHAPIRA, Yoash [IL/IL]; 23 Neue Reim, 49 323 Petah Tikva (IL). HANEIN, Yael [IL/IL]; 54 Shlonski Street, 69 410 Tel Aviv (IL). GABAY, Tamir [IL/IL]; P. O. Box 3633, 60 920 Kadima (IL).
- (21) International Application Number: PCT/IL2003/000913
- (22) International Filing Date: 3 November 2003 (03.11.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/423,973 6 November 2002 (06.11.2002) US
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- (81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

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(54) Title: SYSTEM FOR AND METHOD OF POSITIONING CELLS AND DETERMINING CELLULAR ACTIVITY THEREOF



(side view)

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(57) Abstract: A device for positioning at least one cell in at least one addressable position, the device comprising a substrate (12) formed with at least one addressable pore (14) and at least one channel (16) embedded in the substrate and being held in fluid communication with the at least one pore. The at least one pore and the at least one channel are designed and constructed such that an under-pressure formed in the at least one channel results in vacuum adherence of the at least one cell onto the at least one pore, such that a single cell is vacuum adhered onto a single pore. In one embodiment, the substrate is a non-conductive substrate and is further formed with one or more electrode structures (22), where each of the electrode structures is positioned in one of the pores. In an additional embodiment the device is designed to be locatable on an organ, such as the brain.